AMADAS Self-Propelled Peanut Combine Diagnostics and Service Manual

MAN140

July 2013

AMADAS INDUSTRIES

American Manufactured • Advanced Design • Absolute Service

Table of Contents

- **Anatomy of an Amadas Self Propelled Peanut Combine**
- **Amadas Self Propelled Diagnostics and Repair**
- **Field Performance**
- **Warranty Information**

Anatomy of an Amadas Self Propelled Peanut Combine

Amadas Specific

- Header
- Main Chassis
- Threshing and Separation System
- Peanut Basket
- Unloading Conveyor
- Auxiliary Hydraulics

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Anatomy of an Amadas Self Propelled Peanut Combine

John Deere Supplied

- Steering System
- Cab
- Major Drive Train System
- Engine Platform
- Main Hydraulic System
- HVAC System
- Electrical System

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Differences in the John Deere Supplied Systems as used in the SP Peanut Combine

- **Steering System:** Some hose lengths are specific to Amadas. The rear axles with two steering cylinders are identical to a Deere CWS combine. Rear axles with a single steering cylinder use an Amadas center and Deere STS components.

- **Cab:** The cab is a Deere production cab with minor changes. These are: 10% engine speed control, Amadas labeling for certain switches or displays, and a switch for header reversing either internal (9970) or external (all other models).

- **Major Drive Train System:** These components, such as the hydrostat, transmissions, final drives, etc., are completely Deere items. Hose, cables, and steel lines that support these are custom for Amadas. The shafts that connect the final drives to the transmission are also specific to Amadas combines.

- **Engine Platform:** Includes the engine, main gear case, coolant system, and the platform they are mounted on. Through the 9960 model combines these were CWS (Walker) combine units.

The 9970 uses a Deere engine platform and the 9970(s) uses a S550 engine platform but retains the 9570 engine harness and separator engage valve. In addition, the STS rotor drive is not used. *All engines use an Amadas specific ECU program.*

Differences in the John Deere Supplied Systems as used in the SP Peanut Combine

- **Main Hydraulic System:** The hydrostat system is identical to Deere although most hose lengths are specific to Amadas. The main pump stack is the same as a grain combine. Up through the 9960 combines, the pumps were used as the same function as the grain combine. The 9970 uses the HillMaster version header lift pump to power the OCS conveyor (if equipped). The valve stack pump is flow divided and used to power both the valve stack and header lift. All other pumps on the 9970 are used for the original Deere purpose. The main valve stacks are Deere supplied on combines up to 9960s. Beginning with the 9970 combines, the valve stack is Amadas specific.

- **HVAC System:** Except for some hose lengths, the system is the same as a Deere combine.

- **Electrical System:** All Amadas SP combines use the Deere electrical system from the equivalent Deere combine. All major components such as relay boards, controllers and engine harness panels are Deere products. Main harnesses are Amadas specific. The controls are all Deere, although some circuits are used to control different items on the Amadas combine. All controllers on the 9960 use Deere 9560 STS programs. The 9970 payloads are all Deere 9570 STS payloads except the ADU, which is specific for Amadas.

Amadas Self Propelled Diagnostics and Repair

- Amadas/John Deere Comparable Machines
- Available Information and How to Access it
- Diagnosing Electrical Problems
- Hydraulic Diagnostics
- Basic Mechanical Repairs

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Amadas/John Deere Comparable Machines

Comparable Machines	
Amadas Model Number	John Deere Grain Combine Model Number
9970(S)	9570 STS (6.8L) *
9970	9570 STS (6.8L)
9960	9560 CWS (6.8L)
9900	9510 CWS (8.1L)
9865	9500 CWS (7.6L)
9665	9500 CWS (7.6L)

NOTE: The 9970 (S) uses a Deere S550 Engine platform but the engine harness and separator valve are 9570 components.

Available Information and How to Access it

- Parts Catalogs
  - Front pages identifies the equivalent Deere combine
  - Hydraulic hose routing
  - Combine shaft speeds
  - Listing of John Deere Filters
- Operators Manuals
  - General Operation instructions
  - Basic DTC's
- Electrical Manuals
  - Function cross reference
  - Circuit code listings
  - Connector Information
  - Schematics
  - Machine Settings
- Operators Quick Reference
- Technical Information
  - Information on specific topics
  - 9970 Payloads
- Access: www.amadas.com

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www.amadas.com

Select Product Catalogs & Manuals

NOTE: The Amadas website is being updated, the content in the Catalogs and Manuals section will not change but the access may vary from what is illustrated here.

Product Catalogs & Manuals

AMADAS INDUSTRIES

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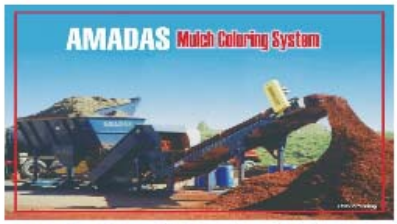
Home | Catalogs & Manuals | Dealers | Sales Areas | Contacts | Order Parts

CATALOGS & OPERATOR MANUALS

TIP: If accessing Catalogs & Manuals via the Amadas Web Site use the "Save Target As..." feature in your browser to save the file to your local PC for faster viewing.



Amadas Industrial Equipment Catalogs

Amadas Agricultural Equipment Catalogs

Agricultural Technical Information

Industrial Technical Information

Suffolk Plant
1100 Holland Rd.
Suffolk, VA 23434
(757) 539-0231
Fax (757) 934-3264

Albany Plant
1701 South Slappey Blvd.
Albany, GA 31706
(229) 439-2217
Fax (229) 439-9343

Select "Agricultural Technical Information" for additional information

Select "Amadas Agricultural Equipment Catalogs" for parts catalogs or manuals

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Agricultural Equipment Catalogs & Operator Manuals

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AGRICULTURAL EQUIPMENT CATALOGS & OPERATOR MANUALS

TIP: If accessing Catalogs & Manuals via the Amadas Web Site use the "Save Target As..." feature in your browser to save the file to your local PC for faster viewing.

Click here for Technical Information

Pull Type Peanut Combine

Self Propelled Peanut Combine

Select "Self Propelled Peanut Combine" for parts catalogs or manuals

Self-Propelled Combines Parts Catalogs & Operators Manuals

Click here for SP Combine Technical Information

9665 Self Propelled Peanut Combines

Machine Model	Serial #'s		Edition Date
9665	A33660 & 033859	Parts Catalog	1st Ed. 8/1/97
		Operators Manual	1997

9865 Self Propelled Peanut Combines

Machine Model	Serial #'s		Edition Date
9865	036000-036647	Parts Catalog	1st Ed. 8/15/98
		Operators Manual	1998
M6520-5 Optional 20' Header for 9865	Beg. 380970	Parts Catalog	1st Ed. 8/15/2011

9900 Self Propelled Peanut Combines

Machine Model	Serial #'s		Edition Date
9900	370160-409999	Parts Catalog	1st Ed. 8/1/1999
A9900	Beginning 370160	Parts Catalog	2nd Ed 6/30/2000
		Operators Manual	2000
UOTG "Unload On The Go" System for A9900 Combines	Beginning 400000 (Refers to Basket Serial No.)	Parts Catalog	1st. Ed. 4/15/2003

9965A Self Propelled Peanut Combines

Machine Model	Serial #'s		Edition Date
9965A	370139-370152	Parts Catalog	1st Ed. 8/1/99

9960 Self Propelled Peanut Combines

Machine Model	Serial #'s		Edition Date
9960	410000-419999	Parts Catalog	1st Ed. 8/1/2003
		Operator's Manual	1st Ed.Rev.1 Sept. 2003
		Electrical Manual	1st Ed. May 2013
		Operator Controls Quick Reference	Sept. 2003
9960	420000-429999	Parts Catalog	2nd. Ed. 5/1/2004
		Operator's Manual	1st Ed.Rev.1 Sept. 2003
		Electrical Manual	1st Ed. May 2013
		Operator Controls Quick Reference	Sept. 2003
9960	430000-439999	Parts Catalog	3rd. Ed. 3/1/2005
		Operator's Manual	2nd Ed. April 2005
		Electrical Manual	1st Ed. May 2013
9960	440000-450030	Parts Catalog	4th. Ed. 4/15/2006
		Operator's Manual	3rd Ed. June 2006
		Electrical Manual	1st Ed. May 2013

9960	440000-450030	Parts Catalog	4th. Ed. 4/15/2006
		Operator's Manual	3rd Ed. June 2006
		Electrical Manual	1st Ed. May 2013
		Operator Controls Quick Reference	Sept. 2003
9960	450031-459999	Parts Catalog	5th. Ed. 3/15/2007
		Operator's Manual	3rd Ed. June 2006
		Electrical Manual	1st Ed. May 2013
		Operator Controls Quick Reference	Sept. 2003
9960	460000-469999	Parts Catalog	6th. Ed. 4/1/2008
		Operator's Manual	3rd Ed. June 2006
		Electrical Manual	1st Ed. May 2013
		Operator Controls Quick Reference	Sept. 2003
9960	470000-479999	Parts Catalog	7th. Ed. 2/1/2009
		Operator's Manual	3rd Ed. June 2006
		Electrical Manual	1st Ed. May 2013
		Operator Controls Quick Reference	Sept. 2003
9960	Beginning 480000	Parts Catalog	8th. Ed. 2/1/2010
		Operator's Manual	3rd Ed. June 2006
		Electrical Manual	1st Ed. May 2013
		Operator Controls Quick Reference	Sept. 2003

9970 Self Propelled Peanut Combines

Machine Model	Serial #'s		Edition Date
9970	470300-480154	Parts Catalog	1st Ed., Rev. 12/1/2009
		Operator's Manual	1st Ed. August 2009
		Electrical Manual	1st Ed. June 2009
		Operator Controls Quick Reference	January 2011
9970	480155-489999	Parts Catalog	2nd Ed., Rev. 3/15/2010
		Operator's Manual	1st Ed. August 2009
		Electrical Manual	1st Ed. June 2009
		Operator Controls Quick Reference	January 2011
9970	490000-499999	Parts Catalog	3rd Ed., 10/15/2010
		Operator's Manual	1st Ed. August 2009
		Electrical Manual	1st Ed. June 2009
		Operator Controls Quick Reference	January 2011
9970	Beg. 500000	Parts Catalog	4th Ed., 11/01/2011
		Operator's Manual	1st Ed. August 2009
		Electrical Manual	1st Ed. June 2009
		Operator Controls Quick Reference	January 2011
9970	Beg. 500000	Parts Catalog	5th Ed., 3/15/2012
		Operator's Manual	1st Ed. August 2009
		Electrical Manual	1st Ed. June 2009
		Operator Controls Quick Reference	January 2011
9970(S)	500005-509999	Parts Catalog	1st Ed., 5/15/2012
		Operator's Manual	1st Ed. August 2009
		Electrical Manual	1st Ed. June 2009
		Operator Controls Quick Reference	January 2011
9970(S)	Beg. 510000	Parts Catalog	2nd, 1/15/2013
		Operator's Manual	1st Ed. August 2009
		Electrical Manual	1st Ed. June 2009
		Operator Controls Quick Reference	January 2011
Green Peanut Supplement		Parts Catalog	1st Ed. 2/15/2010

Headers for Self Propelled Peanut Combines

General Technical Information

Release Date	Subject
12/6/11	Seal Kits for Hydraulic Cylinders Form 0374

Digger Information

Release Date	Subject
03/28/11	Tach Programming for Diggers/Irrigators (Form 0366; Part #16395)

SP Combine Technical Information

Release Date	Subject
07/12/05	SP Tire Pressures
01/10 2nd Ed	Open Top Conversion for 9900 SP Peanut Combine
2005	2005 SP & PT Peanut Combine Service School
01/11	Operator Controls Quick Reference for 9970 SP Peanut Combine
09/27/11	Adjusting Header Speed Rate for 9970 Form 0371
09/27/11	Setting 9970 Cab Controller for Dual Tires Form 0373
12/14/11	Installation Instructions for the Chaff Spreader Pump Kit for 9970 MAN122
09/04/12	Installation Instructions for the Chaff Spreader Pump Kit for 9970 (S550 Engine Platform) MAN125
05/01/12	Unloading the 9970 from a Common Carrier
07/17/12	Calibrating Autotrak for 9970 Wheel Angle Sensors
07/17/12	Calibrating Header with 9970 Calibration Box
01/08/13	Basic Diagnostic Trouble Codes for 9960 (See John Deere 9560 for Complete List)
01/08/13	Basic Diagnostic Trouble Codes for 9970 (See John Deere 9570 for Complete List)
02/08/13	Machine Setting Addresses for 9960
04/16/13	List of Wiring Harnesses for SP Combine Models M9665, M9865, A9900, A9905-4, M9965A
04/16/13	16264 Wiring Harness Drawing
04/16/13	16293 Wiring Harness Drawing

Diagnostics of the Electrical System

- Using the Electrical Manuals
  - 9970 Electrical Manual (MAN 111)
  - 9960 Electrical Manual (MAN 132)
- How to Access, Select and Load 9970 payloads into Service Advisor
- Diagnosing Header Engage and Reversing Problems

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Using the Electrical Manuals

- Determining use of a circuit
- Using the schematics to follow a circuit and see differences (if any) from Deere
- Circuit wire color and harness connector location
- Connector illustration and circuit locations
- Machine settings
- OCS timer box schematic

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Circuit Code Numbers with John Deere Amadas 9970 Functions

253 LC1 Sensor Supply 1	Same	From LC1 to Header lift cylinder pressure sensure	SE-09 (2)
254 CAB Local CAN Hi	Same	From CAB to CPM	SE-05
255 CAB Local CAN Lo	Same	From CAB to CPM	SE-05
264 LC1 Local CAN Hi	Same	From LC1 to LPM	SE-10
265 LC1 Local CAN Lo	Same	From LC1 to LPM	SE-10
267 LC1 8V Power Supply	Same	From LC1 to various speed sensors	SE-09 (3)
270 LC2 Sensor Return 1	used for fan dampener sensor	From LCU2 to fan dampener actuator position sensor	SE-11
273 LC2 Sensor Supply 1	used for fan dampener sensor	From LCU2 to fan dampener actuator position sensor	SE-11
284 RCU Local CAN Hi	Same	From RCU to RPM	SE-13 (3)
285 RCU Local CAN Lo	Same	From RCU to RPM	SE-13 (3)
290 RCU Sensor Return	Same		
293 RCU Sensor Supply	Same	From RCU to EP for sensor s through RH Main and Engine harness and to Bin Full sensor through RH Main and basket harness	SE-13 (1 &2)
297 RCU 8V Sensor Supply	Same	From RCU to #2 stripper cyl., #1 cyl &#4 cyl speed sensors	SE-13 (1)
Circuit code # and Deere Function cc# 300-400	**Amadas 9970 Function**	**Location or Pathway of Circuit**	
301 Separator Engage	Same	From RCU to separator engaged solenoid	SE-13 (4)
302 RPM Micro Power	Same	From RCU to RPM	SE-13 (3)
306 Chaffer 1 Extend	Used for Fan Dampener movement	From LC2 to Elevator Fan Damper Actuator	SE-11 (1)
307 Chaffer 1 Retract	Used for Fan Dampener movement	From LC2 to Elevator Fan Damper Actuator	SE-11 (1)
312 RPM Power 1	Same	From Power Distribution to RPM	SE-14
316 Auger Swing In	Conveyor In	From LC1 to Conveyor Swing in Solenoid	SE-09 (1)
317 Auger Swing Out	Conveyor Out	From LC1 to Conveyor Swing Out Solenoid	SE-09 (1)
319 Auger Engage	Conveyor Engage	From RCU to timer box through RH Main thenengine harness then removed from there and extended to basket harness	Se-13(4)
322 RPM Power 2	Same	From Power Distribution to RPM	SE-14
323 Threshing Clearance Increase	Cleaning Fan Damper increase	From LPM to cleaning fan actuator	SE-10
324 Threshing Clearance Decrease	Cleaning Fan Dampener Decrease	From LPM to cleaning fan actuator	SE-10
329 Threshing Speed Change	Same		

Use to determine function of a circuit and what page(s) the circuit is found in the schematic

Circuit Code Numbers with John Deere Functions and Amadas 9960 Functions

Circuit Code	Deere Function (Amadas Function, if different)	Schematic Page Number (Corresponds to 9960ELEC-# on schematic pages)
317	Auger Swing Out (Conveyor Swing Out)	4
319	Unloading Auger Engage (Unloading Conveyor Engage)	4,11
322	Walkers Plugged Signal (Peanut Door Open Alarm)	11
402	Header Clutch Engage Power (Header Solenoid Power)	8,11
406	Header Raise	13
407	Header Lower	13
412	Header Height Sensor 1 (Header Solenoid B Reverse)	4
414	Header Sensor (AHHC Pressure Sensor Signal On Left Header Cylinder)	17
418	Reel Forward Peanut Basket Up)	13
419	Reel Aft (Peanut Basket Down)	13
422	Reel Speed Decrease (Header Speed Decrease)	13
423	Reel Speed Increase (Header Speed Increase)	13
436	Header Sel 1	13,17
438	Header Drop Rate	13
442	FH Reverse (Header Rev. Relay Signal 2004 "SNs" Starting With 42 Only)	4,8
450	AHC Ground	1,13
471	AHC Sensor +5V2	13
480	AHC Sensor Ground	13,17
481	AHC Sensor +5V1	13,17
487	Header Sel 2	13,17
490	Armrest Sensor Ground	8
491	Injector Solenoid High 1	6
492	AHC Encoder 1	8
493	AHC Encoder 2	6,8
494	Injector Solenoid Cylinder 2	6
495	Injector Solenoid Cylinder 3	6
496	Injector Solenoid High 2	6
497	Injector Solenoid Cylinder 4	6
498	Injector Solenoid Cylinder 5	6
499	Injector Solenoid Cylinder 6	
502	Hazard Lights Signal	4,5

Use to determine function of a circuit and what page(s) the circuit is found in the schematic

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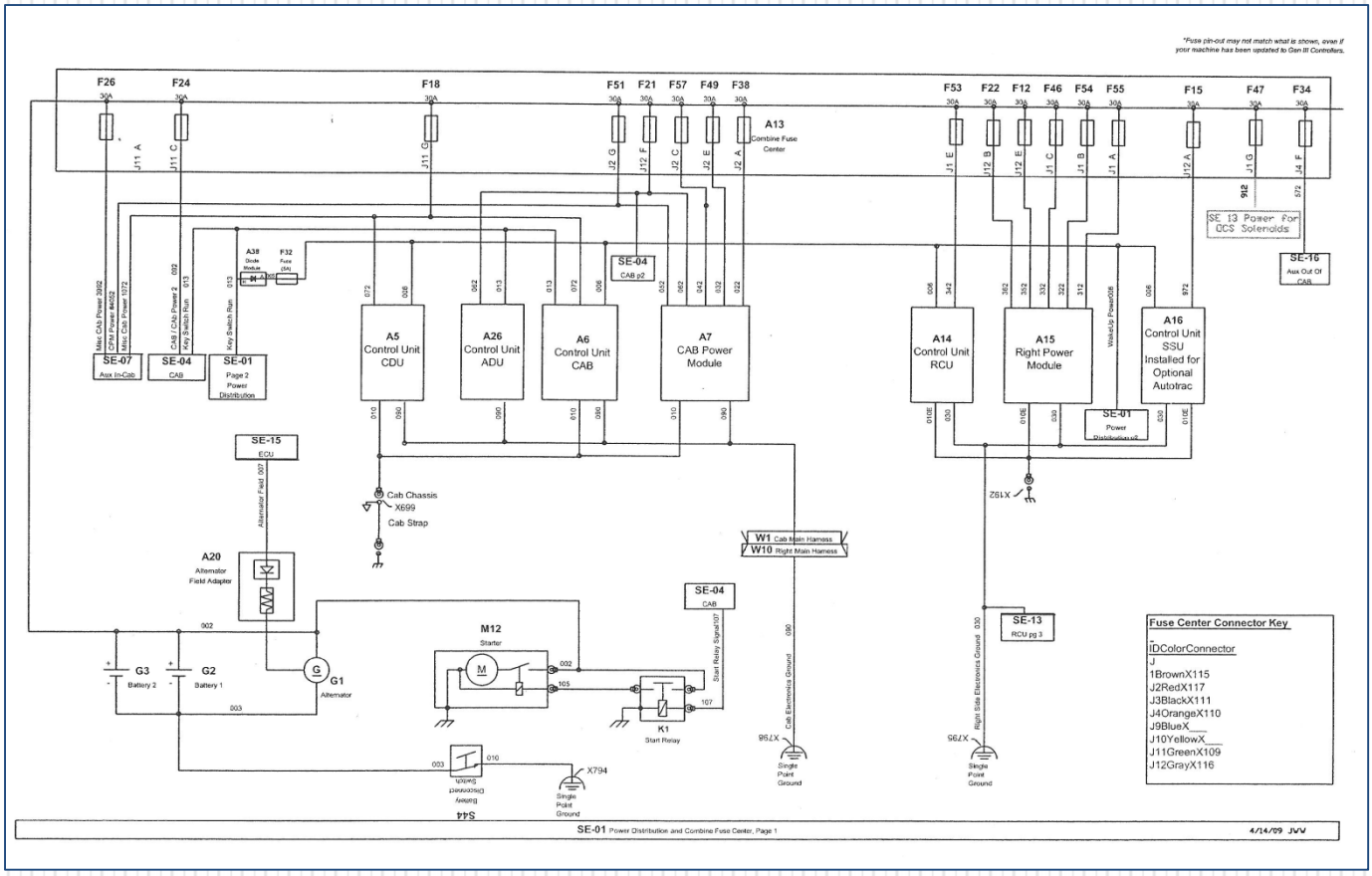
9970 Electrical Schematic



Use to follow a circuit and determine differences if use is not the same as Deere

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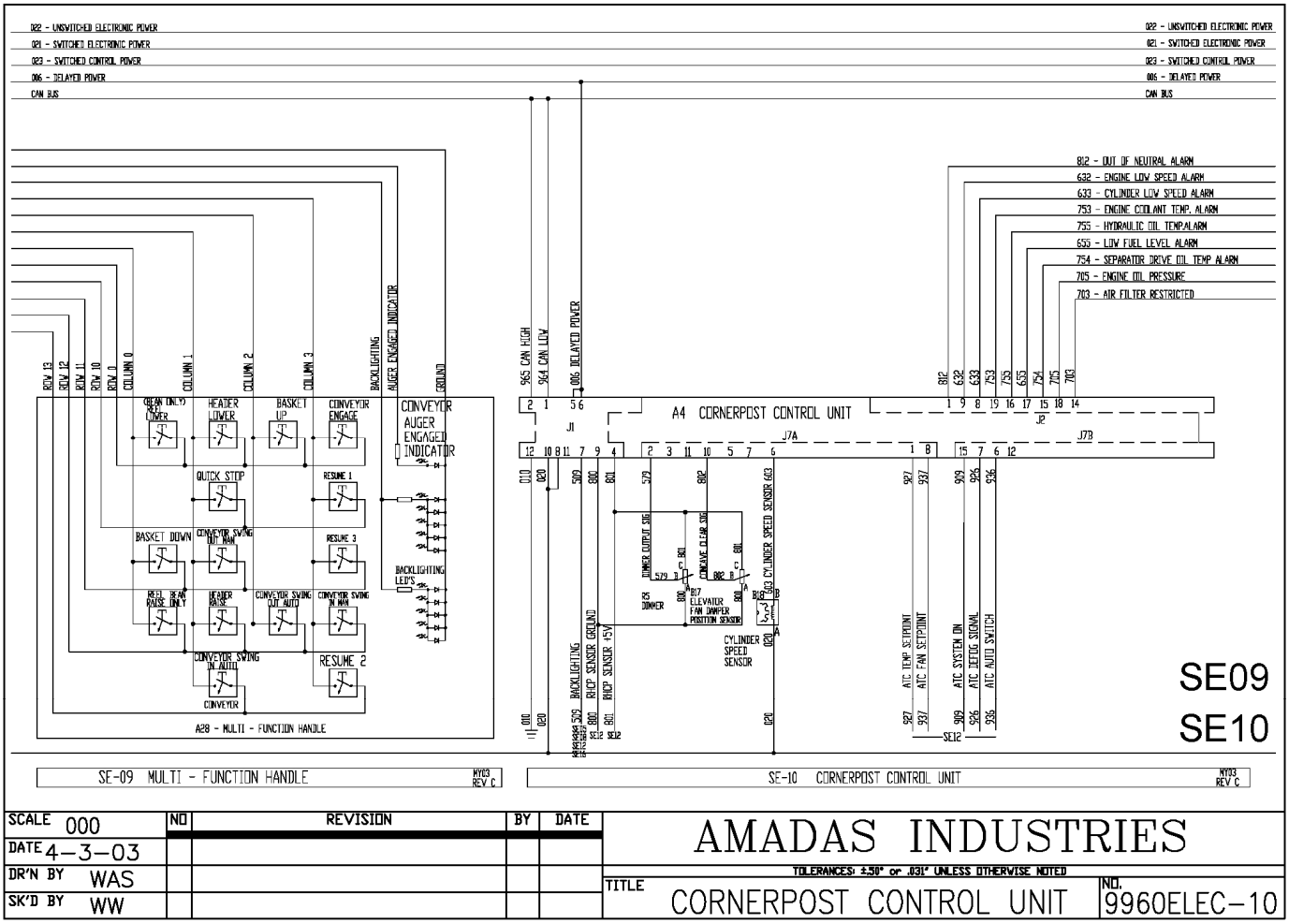
9960 Electrical Schematic


022 - UNSWITCHED ELECTRONIC POWER
021 - SWITCHED ELECTRONIC POWER
023 - SWITCHED CONTROL POWER
006 - DELAYED POWER
CAN BUS
812 - OUT OF NEUTRAL ALARM
632 - ENGINE LOW SPEED ALARM
633 - CYLINDER LOW SPEED ALARM
753 - ENGINE COOLANT TEMP. ALARM
755 - HYDRAULIC OIL TEMP.ALARM
655 - LOW FUEL LEVEL ALARM
754 - SEPARATOR DRIVE OIL TEMP ALARM
705 - ENGINE OIL PRESSURE
703 - AIR FILTER RESTRICTED
A4 CORNERPOST CONTROL UNIT
A28 - MULTI - FUNCTION HANDLE
CONVEYOR AUGER ENGAGED INDICATOR
BACKLIGHTING LED'S
QUICK STOP
RESUME 1
RESUME 2
RESUME 3
CYLINDER SPEED SENSOR
ELEVATOR FAN DAMPER POSITION SENSOR
ATC TEMP SETPOINT
ATC FAN SETPOINT
ATC SYSTEM ON
ATC DEFOG SIGNAL
ATC AUTO SWITCH
SE09
SE10
SE-09 MULTI - FUNCTION HANDLE
SE-10 CORNERPOST CONTROL UNIT

SCALE 000	NO	REVISION	BY	DATE	AMADAS INDUSTRIES
DATE 4-3-03					TOLERANCES: ±.50° or .031" UNLESS OTHERWISE NOTED
DR'N BY WAS					TITLE: CORNERPOST CONTROL UNIT — NO. 9960ELEC-10
SK'D BY WW					

Use to follow a circuit and determine differences if use is not the same as Deere

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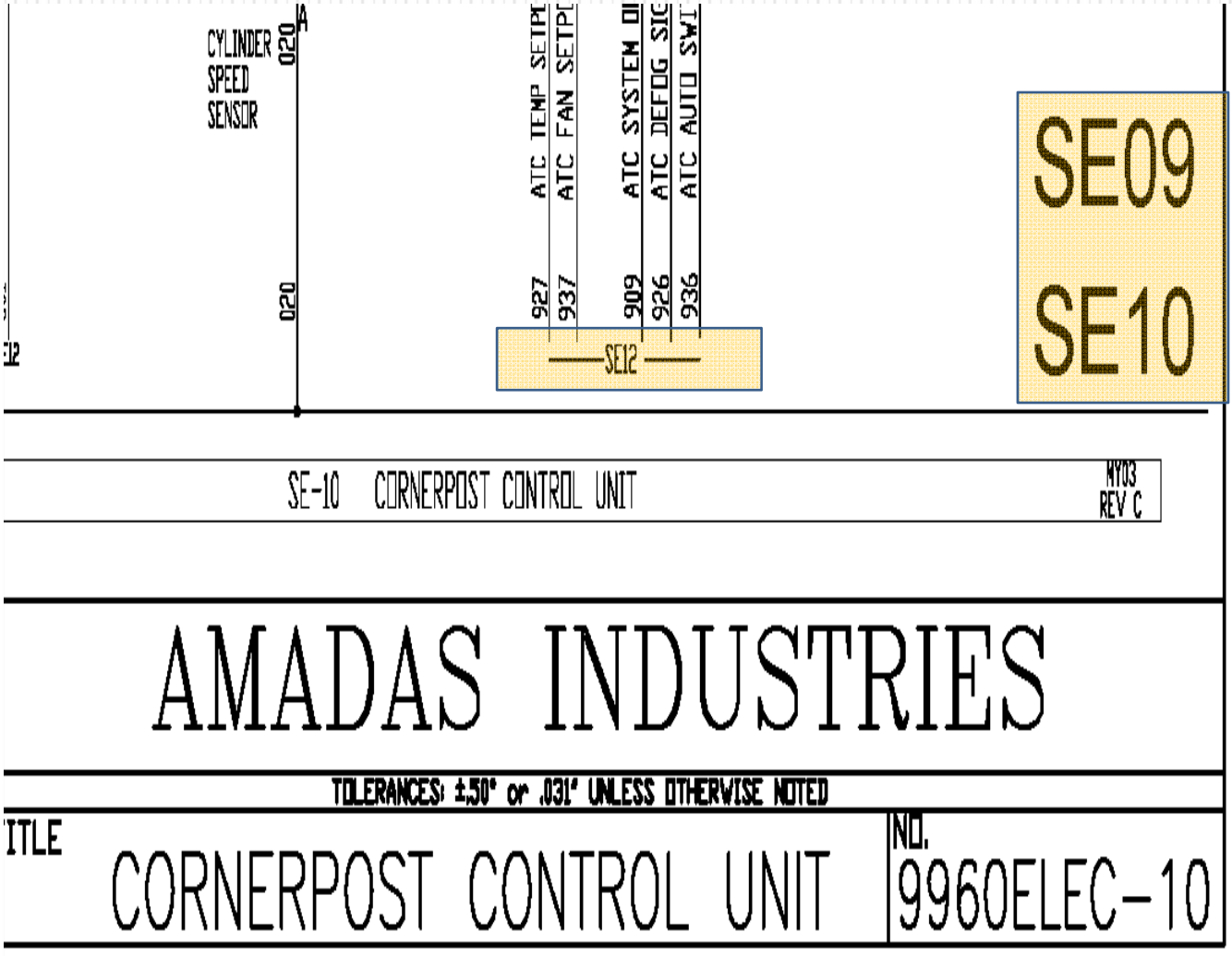
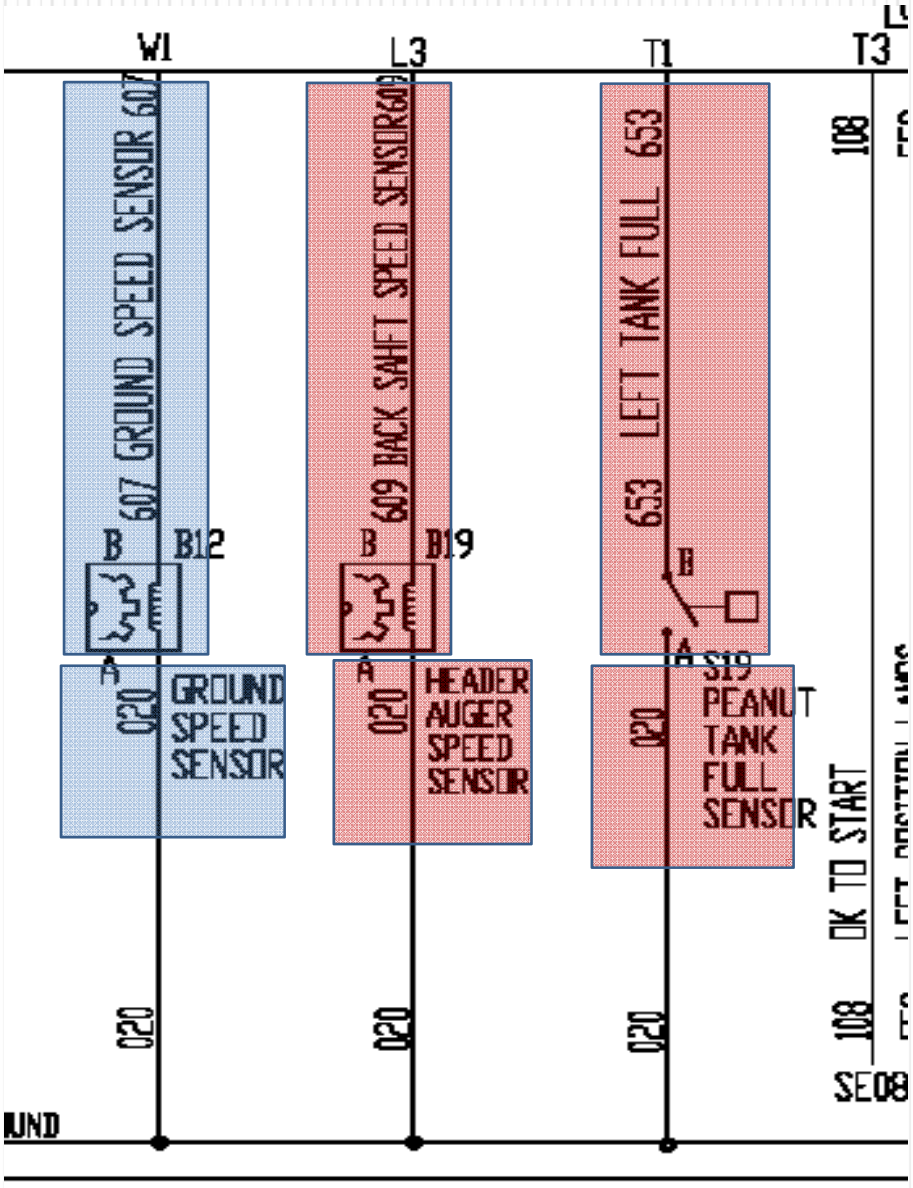
9960 Electrical Schematic



For the 9960, if the schematic directs you to another page, always use the SE #’s to follow the circuit

9960 Electrical Schematic



If the circuit code matches vertically and horizontally then the function is the same as Deere.

If Amadas-specific use, then the vertical circuit code name will be the Deere use and the horizontal name will be the Amadas use.

Circuit Codes within the Amadas 9970 Harness with Wire Color, Connector ID, and Pin Numbers

Listing of Circuit Codes that are within the Amadas Harness with wire color, connector identification and pin numbers.

Note 1: If Circuit is not listed here it is part of a John Deere supplied harness. Refer to the Circuit Code listing with schematic reference to find it in the schematic or refer to the John Deere Tech Manual for a 9570 STS Combine for more information.

Note 2: Refer to the Connector Identification sheets for more information on connectors and location.

Circuit code # and Deere Function cc# 0-99	Wire Color
006 System Wakeup Power	Blue
(X101, Pin 2), (X131, Pin A1), (X288, Pin1), (X131, Pin A1), (X358,Pin A1), (570 Pin 1)	
007 Alternator Field	Purple
(X131, Pin G3), (X701, Pin 4),	
010 Chassis Ground	Black
(X104, Pin A), (X123, Pin A), (X142, L1), (X142, L2), (X146, Pin A), (X169), (X173, Pin E), (X175, Pin H), (X192), (X211), (X222, Pin A), (X229, Pin A), (X246, Pin A), (X256, Pin A), (X268, Pin A), (X284, Pin A), (X297, Pin 6), (X297, Pin 9), (X297, Pin 12), (X297, Pin 16), (X297, Pin 20), (X297, Pin 24), (X297, Pin 25), (X297, Pin 27), (X297, Pin 31), (X306, Pin 1), (X309, Pin A), (X331, Pin 9), (X332, Pin 9), (X341, Pin L1), (X341, Pin L2), (X354, Pin A), (X355, Pin A), (X359, Pin L1), (X359, Pin L2), (X364, Pin E), (X366, Pin H), (X806, Pin B), (X901, Pin 12), (X1003, Pin 18), (X1005), (X1010, Pin A), (X1011, Pin A), (X1013), (X1014), (X1017, Pin A), (X1018), (T1, Pin A), (T2, Pin A)	
013 Key Switch RUN Signal	Orange
(X570, Pin 7), (X701, Pin 2)	
020 Left Side Electronics Ground	Black
(X339, Pin H1), (X358, Pin H1), (X365, Pin B), (T1, Pin A)	
022 CPM Power 1	Red
(X117, Pin A), (X569, Pin A)	
030 Right Side Electronics Ground	Black
(X101, Pin 1), (X131, Pin H1), (X174, Pin B), (X193)	
032 CPM Power 2	Red
(X117, Pin E), (X569, Pin B)	
042 CPM Power 3	Red
(X117, Pin C), (X569, Pin C)	
052 CPM Power 4	Red
(X117, Pin G), (X569, Pin E)	
060 Engine Electronics Ground	Black
(X195), (X701, Pin 5)	

Used to identify the wire color and connector locations of a circuit.

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Circuit Codes within Amadas 9960 Harnesses with Wire Color, Connector ID, and Pin Numbers

Listing of Circuit Codes Within Amadas Harness With Wire Color, Connector Identification, and Pin Number	
Note 1: If Circuit is not listed, it is part of a John Deere-supplied harness. Refer to the Circit Code listing with schematic reference to find it in the schematic or refer to the John Deere Tech Manual for a	
Note 2: Refer to the Connector Identification Sheets for more information on connectors and locations.	
Circuit code # and Deere Function	**Wire Color**
cc# 0-99	
005 System Wakeup Diode Input	
(X5001, PIN A2) (X5005, PIN E)	Red
006 System Wakeup Power	
(X5025, PIN M) (X5049, PIN B) (X5006, PIN H)	Red
010 Chassis Ground	
(5024, PIN 3) (X5044, PIN C) (X5038, PIN A) (X5008, PIN 18) (X5000, PIN D) (5052, PIN A) (X5053, PIN A) (X5040, PIN 3) (X5057) (X5020, PIN 12) (5057) (X5048, PIN C) (X5043) (X5040, PIN 6) (X5040, PIN 12) (X5040, PIN 16) (X5040, PIN 18) (X5040, PIN 19) (X5040, PIN 20) (X5033, PIN A) (X5040, PIN 21) (X5040, PIN 24) (X5040, PIN 25) (X5040, PIN 27) (X5040, PIN 31) (X5041) (X5042) (X5035) (X5036) (X5037, PIN A) (X5028, PIN A) (X5032, PIN A) (X5018, PIN A) (X5011, PIN B) (X5005, PIN A) (X5002, PIN N2)	Black
011 Key Switch Accessory Power	
(X5050, PIN G) (X5019, PIN A)	Red
012 Miscellaneous Cab Power	
(5026, PIN 1) (X5019, PIN B)	Red
013 Key Switch Run Signal	
(X5048, PIN E) (X5019, PIN C)	Red
014 Header Height Encoder 1	
(X5050, PIN F) (X5007, PIN E)	Red
016	
(X5056) (X5049, PIN F) (X5005, PIN H)	Red
020	
(X5025, PIN A) (5051, PIN A (X5014, PIN A) (X5045, PIN A) (X5045, PIN A) (X5047, PIN G) (X5034, PIN A) (X5039, PIN A) (X5031, PIN A) (X5020, PIN 10) (X5013, PIN A) (X5009, PIN 5) (X5012, PIN A) (X5008, PIN 20) (X5005, PIN D) (X5002, PIN L1)	Black

Used to identify the wire color and connector locations of a circuit.

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9970 Main Harness Connectors and Terminal Information

CONNECTOR TERMINALS

(1) X101
AUTOTRACK

X101	AUTOTRACK	
PIN	WIRE CODE	COLOR
1	030B	BLK
2	006B	BLU
3	972	RED
4	965G	GRN
5	964G	YEL
6	960G	BLK
7	962G	RED
8	942	RED

(2) X104
RIGHT STUBBLE LIGHT

X104	RIGHT STUBBLE LIGHT	
PIN	WIRE CODE	COLOR
A	010B	BLK
B	563	ORG

(3) X115
FUSE CENTER BROWN

X115	FUSE CENTER BROWN	
PIN	WIRE CODE	COLOR
A	972	RED
B	362	RED
C		
D		
E	352	RED
F	062	RED
G		
H	402	RED

(4) X116
FUSE CENTER GREY

X116	FUSE CENTER GREY	
PIN	WIRE CODE	COLOR
A	312	RED
B	322	RED
C	332	RED
D		
E	342	RED
F		
G	912	RED
H		

(5) X117
FUSE_CENTER_RED

X117	FUSE_CENTER_RED	
PIN	WIRE CODE	COLOR
A	022	RED
B		
C	042	RED
D		
E	032	RED
F		
G	052	RED
H		

(6) X118
FUSE_CENTER_GREEN

X118	FUSE_CENTER_GREEN	
PIN	WIRE CODE	COLOR
A	992	RED
B		
C	092	RED
D		
E		
F		
G	072	RED
H		

(7) X123
RIGHT GULL WING SERVICE LIGHT

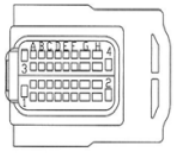
X123	RIGHT GULL WING SERVICE LIGHT	
PIN	WIRE CODE	COLOR
A	010H	BLK
B	594	YEL

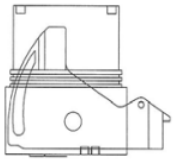
(8) X130
WATER IN FUEL SENSOR

X130	WATER IN FUEL SENSOR	
PIN	WIRE CODE	COLOR
A	5414	YEL
B	5453	ORG

(9) X131
RCU1 J1 BROWN (RIGHT CONTROL UNIT)

X131	RCU1 J1 BROWN	
PIN	WIRE CODE	COLOR
A1	006	BLU
A2		
A3		
A4		
B1	965C	GRN
B2	755	GRN
B3	619	WHT
B4		
C1	964C	YEL
C2	756	GRN
C3		
C4		
D1	285	GRN
D2		
D3		
D4		
E1	284	YEL
E2		
E3		
E4		
F1		
F2	753	ORG
F3	609	WHT
F4		
G1		
G2	942	RED
G3	007	PUR
G4	941	BRN
H1	030A	BLK
H2		
H3	342C	RED
H4	342D	RED

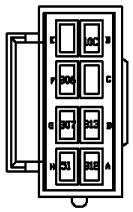




Illustrates connectors and position of circuits within it.
Note: The 9970 uses one main harness.

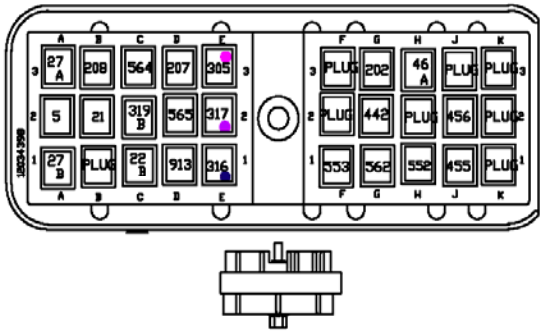
SP 9960 Connector Terminals for 16371 Harness

X5000	POWER BOARD J4 BLACK	
PIN	WIRE CODE	COLOR
A	312	PINK
B	313	PINK
C		
D	10C	BLACK
E		
F	306	PINK
G	307	PINK
H	51	?



X5000
POWER
BOARD
J4
BLACK

X5001	LEFT CONTROL UNIT SLOT 7	
PIN	WIRE CODE	COLOR
A1	27B	RED
B1	PLUG	
C1	22B	RED
D1	913	ORANGE
E1	316	PINK
F1	553	BROWN
G1	562	BROWN
H1	552	BROWN
J1	455	LT GREEN
K1	PLUG	
A2	5	RED
B2	21	RED
C2	319B	PINK
D2	565	BROWN
E2	317	PINK
F2	PLUG	
G2	442	LT GREEN
H2	PLUG	
J2	456	LT GREEN
K2	PLUG	
A3	27A	RED
B3	208	LT BLUE
C3	564	BROWN
D3	207	LT BLUE
E3	305	PINK
F3	PLUG	
G3	202	LT BLUE
H3	46A	RED
J3	PLUG	
K3	PLUG	



X5001
LEFT
CONTROL
UNIT
SLOT 7

Illustrates connectors and position of circuits within it
Note: The 9960 uses Left and Right Hand Main Harnesses

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9970 Machine Settings

Machine Setting Addresses to be set and checked at Run In or if Controllers are replaced.
Also lists payload part # to install into each controller.

Machine Setting Addresses - CAB - ControlUnit CAB				Payload # - AH234251A		
ControlUnit	Add.	Display	Description	Details		
CAB	100		CALIBRATION: Temperature door position sensor	Interactive process	Done during Calibration procedures	
CAB	101		CALIBRATION: Heating, ventilation, and airconditioning desired temperature potentiometer	Interactive process	Done during Calibration procedures	
CAB	102		CALIBRATION: Heating, ventilation, and airconditioning desired blower speed potentiometer	Interactive process	Done during Calibration procedures	
				CAB 110 input will be	**100000**	
CAB	110	nXXXXXXX	DISPLAY/MODIFY: Out-of-cut engine speedreduction option	0 = disabled 1 = enabled	0	
CAB	110	X n XXX XXX	DISPLAY/MODIFY: Bad bulb detection option	0 = disabled 1 = enabled	0	
CAB	110	XX n XXX XX	DISPLAY/MODIFY: Heating, ventilation, and airconditioning automatic recirculation fan speedcontrol option	0 = disabled 1 = enabled	1	
CAB	110	XXXnXXXX	DISPLAY/MODIFY: Automatic beacons with fieldlights option	0 = disabled 1 = enabled	0	
CAB	110	XXX X n XXX	DISPLAY/MODIFY: Australian lighting option	0 = disabled 1 = enabled	0	
CAB	110	XXX XX n XX	DISPLAY/MODIFY: High beams option	0 = disabled 1 = enabled	0	
CAB	110	X X X X X X n	DISPLAY/MODIFY: Lower driving lights option	0 = disabled 1 = enabled	0	
CAB	110	XXX XXX X n	DISPLAY/MODIFY: Lighting type option	0 = North American 1= European	0	
				CAB 111 input will be	**10001**	
CAB	111	nXXXXXXX	DISPLAY/MODIFY: Reduced engine speed in thirdgear option	0 = disabled 1 = enabled	0	
CAB	111	X n X X X X X	DISPLAY/MODIFY: Tailings option	0 = disabled 1 = enabled	0	
CAB	111	XX n X XXX X	DISPLAY/MODIFY: Grain loss display	0 = use time-based grain loss= use speed-based grain loss	0	
CAB	111	XXXnXXXX	DISPLAY/MODIFY: Fully open shoe elementsusing setpoint adjust option	0 = disable option; 1 = enable option (fully open shoe elements when adjusting via setpoint adjust)	1	
CAB	111	XXXXnXXX	DISPLAY/MODIFY: Chopper vane angle adjustment option	0 = disabled 1 = enabled	0	
CAB	111	XXXXXnXX	DISPLAY/MODIFY: Five speed feeder house drive option	0 = disabled 1 = enabled	0	
CAB	111	X X X X X X n	DISPLAY/MODIFY: Feeder house lateral tilt option	0 = disabled 1 = enabled	0	
CAB	111	X X X X X X X	DISPLAY/MODIFY: Header height sensing option	0 = disabled 1 = enabled	1	
				CAB 112 input will be	**0**	
CAB	112	n XXX XXX X	DISPLAY/MODIFY: Grain tank covers option	0 = disabled 1 = enabled	0	

This section of the 9970 manual identifies by controller the payload used and the Machine Settings that must be set or verified when a controller is replaced

9960 Machine Settings

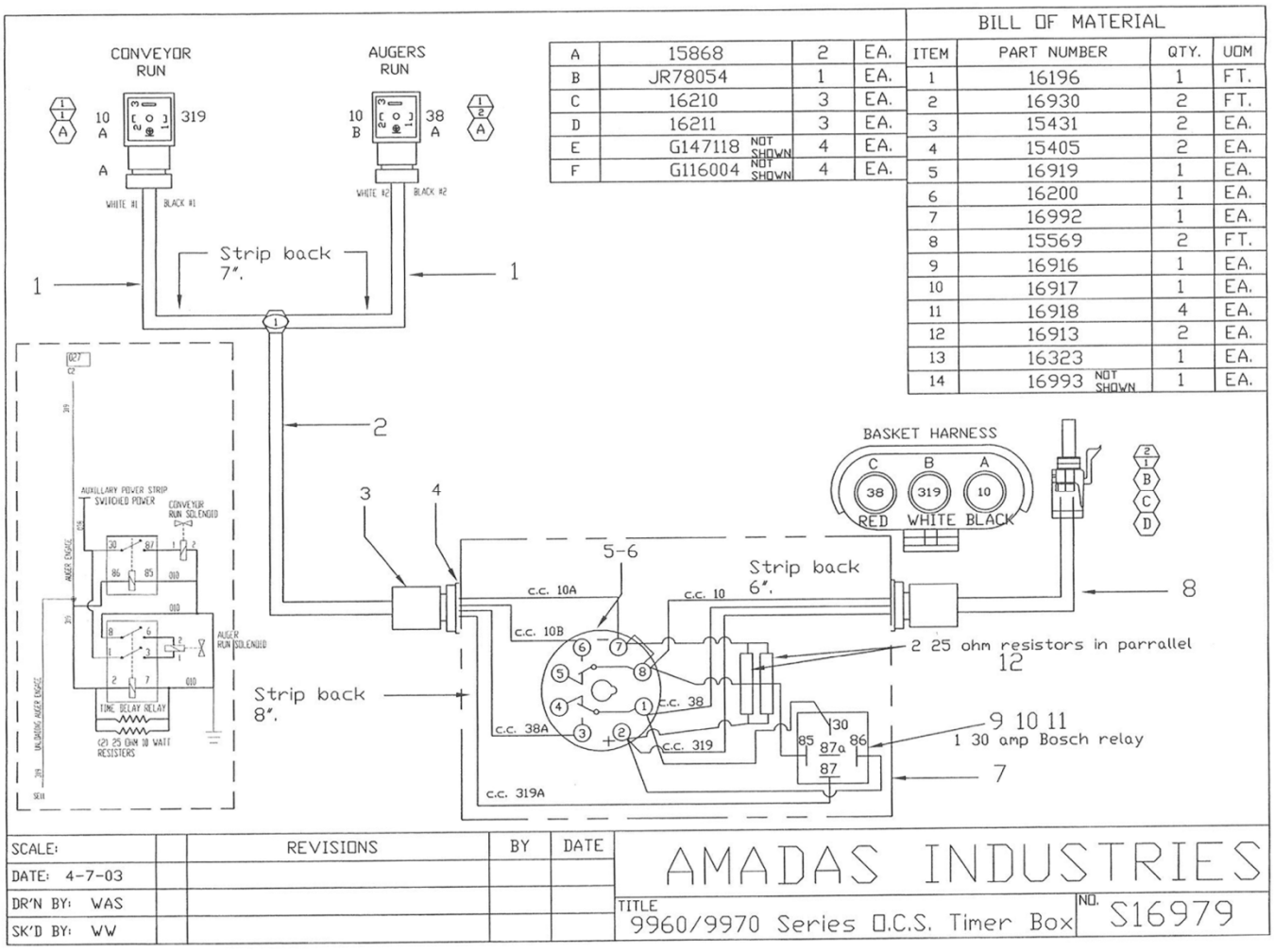
Machine Setting Addresses

C03 Cornerpost Control Unit

Control Unit	Add.	Line 2	Line 3	Description	Details
Cornerpost C03	100	____	____	DISPLAY/MODIFY: User Factory	0=undefined 1=AMADAS
Cornerpost C03	101	____	____	DISPLAY/MODIFY: Vehicle Model	0=undefined 15=AMADAS
Cornerpost C03	102	____	____	DISPLAY/MODIFY: Engine Type	0=undefined 1=AMADAS
Cornerpost C03	103	____	____	DISPLAY/MODIFY: Engine Controller	0=undefined 4=AMADAS
Cornerpost C03	104			DISPLAY/MODIFY: Measurement Units	0=undefined 1=AMADAS
Cornerpost C03	105	____	____	DISPLAY/MODIFY: Engine Alarm RPM	0=undefined 1=AMADAS
Cornerpost C03	106	____	____	DISPLAY/MODIFY: Cylinder Speed Alarm Percentage	0=undefined 80=AMADAS
Cornerpost C03	107			DISPLAY/MODIFY: Ground Speed Pulses Per Revolution	0=undefined 62=AMADAS
Cornerpost C03	108	____	____	DISPLAY/MODIFY: Cylinder Speed Pulses Per Revolution	0=undefined 18=AMADAS
Cornerpost C03	109	____	____	DISPLAY/MODIFY: Cleaning Fan Speed Pulses Per Revolution	0=undefined 18=AMADAS
Cornerpost C03	110			DISPLAY/MODIFY: Backshaft Speed Pulses Per Revolution	0=undefined 18=AMADAS
Cornerpost C03	111			DISPLAY/MODIFY: Engine Speed Pulses Per Revolution	0=undefined 30=AMADAS
Cornerpost C03	112	____	____	DISPLAY/MODIFY: Tire Rolling Radius in Millimeters	0=undefined 815=AMADAS
Cornerpost C03	113	____	____	DISPLAY/MODIFY: Drive Train Ratio 1 Numerator	104=AMADAS
Cornerpost C03	114			DISPLAY/MODIFY: Drive Train Ratio 1 Denominator	11=AMADAS
Cornerpost C03	115	____	____	DISPLAY/MODIFY: Drive Train Ratio 2 Numerator	1=AMADAS
Cornerpost C03	116	____	____	DISPLAY/MODIFY: Drive Train Ratio 2 Denominator	1=AMADAS

These are the 9960 Amadas Machine Settings by controller and address. Unless equipped with OCS, only the Cornerpost controller (C03) requires any machine setting changes. If equipped with OCS, then controller E01 addresses 100 & 101 must be set as well.

O.C.S. Timer Box Drawing



BILL OF MATERIAL			
ITEM	PART NUMBER	QTY.	UOM
1	16196	1	FT.
2	16930	2	FT.
3	15431	2	EA.
4	15405	2	EA.
5	16919	1	EA.
6	16200	1	EA.
7	16992	1	EA.
8	15569	2	FT.
9	16916	1	EA.
10	16917	1	EA.
11	16918	4	EA.
12	16913	2	EA.
13	16323	1	EA.
14	16993 NOT SHOWN	1	EA.

A	15868	2	EA.
B	JR78054	1	EA.
C	16210	3	EA.
D	16211	3	EA.
E	G147118 NOT SHOWN	4	EA.
F	G116004 NOT SHOWN	4	EA.

SCALE:		REVISIONS	BY	DATE
DATE: 4-7-03				
DR'N BY: WAS				
SK'D BY: WW				

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TITLE 9960/9970 Series O.C.S. Timer Box NO. S16979

Illustration, parts listing and schematic of systems that the conveyor and basket auger valves.

NOTES: cc# 38 supplies power for valves, cc#319 controls both relays, the resistors are used to meet minimum amp draw requirement of cc# 319

If timer relay fails and replacement is unavailable a short term repair can be made by using two jumpers. One between terminals 2 & 3, the second between 6 & 7

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Selecting and Installing 9970 Payloads into the Service Advisor

- Go to Technical Information
- Selecting Payloads
  - General
  - Autotrac
- How to download and install payloads into Service Advisor

Note: This is under the Technical Information Section

Autotrac Payloads

Release Date	Subject
10/24/11	How to Select A Payload
10/24/11	How to Copy the Payload
10/24/11	AH234469A
10/24/11	AXE17165A

Other (Non-Autotrac) Payloads

Release Date	Subject
10/24/11	How to Select a Non-Autotrac Payload
10/24/11	How to Copy the Payload
10/24/11	CAB Payload AH234251A
10/24/11	CDU Payload AH231068A_9101
10/24/11	LC1 Payload AH234513A
10/24/11	RCU Payload AH233044A
10/24/11	LC2 Payload AH233046A

Selecting Payloads for 9970 SP Combines

The payload selected depends on the Control Unit as follows:

For the following controller:	Use payload file:
CAB	AH234251A
CDU	AH231068A_9101
LC1	AH234513A
RCU	AH233044A
LC2	AH233046A
SSU	AH234469A

NOTE: SSU payload shown is for a combine with a Serial number of 500003 or higher with a one connector SID for all other applications use AH234469A.

For additional information refer to “How to Select the Correct Autotrac Payload for 9970 SP Combines” Chart.

How to Select the Correct Autotrac Payload for 9970 SP Combines

There are two Autotrac Payload files available. The serial number of your combine and/or the number of SID connectors determine which file to use.

NOTE: The SID is located under the cab near the bottom of the steering column.

If the combine:	Use payload file:
Has a serial number of 500002 or LOWER OR The SID has 2 connectors	AH234469A
Has a serial number of 500003 or HIGHER OR The SID has 1 connector	AXE17165A (Use generic serial # HQ98705735000)

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How to Install a Payload into the Service Advisor

NOTE: The payload file is in a zipped folder. If your operating system is Windows Vista or 7, clicking on the folder will automatically unzip it. If your operating system is Windows XP or an earlier version, you will need WINZIP software to unzip the folder.

1. Use the "How to Select Payloads for 9970 SP Combine" chart to select the correct payload.
2. Click the appropriate payload file from the menu.
3. When the "File Download" screen displays, click **Save**
4. When the Directory screen displays, save the file as follows:

   Open your C:\ directory. Locate the folder labeled **sds**; then open the folder labeled **payloadsn**

   OR

   Save the file to whatever directory you generally save downloads, but note that you will need to copy the file to the **payloadsn** directory.

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5. Once you have selected the directory, click **Save**
6. When “Download Complete” displays, click **Close**.
7. Open the directory in which you saved the folder. If the folder was not saved to the **payloadsn** folder, copy the folder to it.
8. Click the folder; the payload file is listed with a .pld extension.

   NOTE: You must click on the zipped folder to open it or use WINZIP, depending on your operating system. The payload file will not work if you do not see a file with the .pld extension in the **payloadsn** folder.
9. Close all folders.

NOTE: If you are unable to download the file successfully after several attempts, you may send an email to eng@amadas.com to request the file be sent as an email attachment. In the email, you must indicate that you are requesting a payload file, the name of the specific file, and the email address to which the file is to be sent, if different than the requesting email address.

Diagnosing Header Engage and Reversing Problems

- **Will header engage in either forward or reverse ?**

NO!

- Make sure there is hydraulic flow. Check for pump belt (except 9970). Increase header valve flow to maximum.
- Make sure header motor(s) chain(s) are in place.
- If hydraulics and chain are good then disconnect, clean, inspect and reconnect header connector.
- Have someone engage separator and header and test both header valve coils for magnetism.
- Perform same test while trying to reverse header.
- If strong magnetism, hydraulic flow, and chains are present then problem is likely the header valve is seized.
- If no magnetism is present then either both coils have failed, the reverse switch has failed, or header engage circuit has failed.
- Test resistance on both coils. It should be 3 -3.5 ohms.
- The valve can also be tested by disconnecting one of the square connectors and apply 12 VDC to the coil with the separator engaged. If the header turns in one direction then the problem is either the reverse switch has failed or the header engage power is not present.

Diagnosing Header Engage and Reversing Problems

- **Will header engage in either forward or reverse but not both?**

- **Yes!**
- Swap square connectors on header valve and see if problem reverses. If so then either a coil or reversing switch is the problem.
- Test resistance on both coils. It should be 3 -3.5 ohms
- If resistance is good then swap position of the coils and retest. If reverse switch has failed (in one position) then no change should occur.

- Note: On both 9960 and 9970 combines you cannot test for header engage power without it being connected to a good coil. The combine will not sense current draw and will remove power from the circuit.

Hydraulic Diagnostics

- Troubleshoot Header Problems
- Test and Set Header Relief Pressure
- Test and Set OCS Conveyor Pressure
- Diagnosing loss of valve stack functions

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How to Troubleshoot and Correct Header Power Problems

- Check the belt tension on the drive to the pump.
- Inspect the sheaves for excessive wear or heat.
- Test header pressure (See next page)
- Make sure the system has enough oil in it.
- Inspect the header for damage, making sure the teeth are not being run in the dirt too low. If a large number of pickup teeth are missing then replace.
- Inspect the picking cylinders for broken or missing teeth. If a large number are missing, especially in one area, this will cause the header to feed incorrectly.
- Check the clearance between the auger and the header concave. If the auger has worn or the clearance is high, this will cause too much material to be pulled in at one time. If the header has run for some time and is still set at the factory setting, it will need to be adjusted.
- Make sure the header is being run as fast as possible for the conditions. (The slower the header is run, the more oil is bypassed, creating heat and reducing horsepower.)

How to Test and Set Header Relief Pressure

- The test port is the same as used on Deere equipment and teed in at the Header speed control valve.
- The header speed control valve for the 9970 is located in the engine platform area over the main engine gear case.
- On all other model combines the header speed control valve high is on the left side behind the air lift duct.
- The 9970 uses a direct coupled header pump. All other models use a belt drive. This must be in good condition (belt tight, sheaves not worn) before testing the pressure.
- Connect a 5000 psi rated gauge to the test port.
- Disconnect one of the two hoses going to the header. This will “dead head” the system.
- Before starting, ensure no one is near the combine.
- Start the combine and engage the separator just long enough to take a reading.
- The pressure should be set between 3400 - 3600 psi with warm oil.
- If this reading is not achieved, adjust the pressure relief valve as needed. (clockwise to increase pressure, counter clockwise to decrease)
- If the above pressure cannot be met, then either the relief valve or pump is faulty.

How to Test and Set OCS System Pressure

- The test port is the same as used on Deere equipment and teed in on the pressure side of the valve block that controls the conveyor and the augers. This is at the rear of the basket on the right hand side.
- The 9970 uses a direct coupled pump. All other models use a belt drive. This must be in good condition (belt tight, sheaves not worn) before testing the pressure.
- Connect a 5000 psi rated gauge to the test port.
- Disconnect one of the two hoses going to the conveyor. This will “dead head” the system.
- Before starting, ensure no one is near the combine.
- The pump will start with the engine. Start the combine just long enough to take a reading.
- The pressure should be set between 2800 - 3000 psi with warm oil.
- If this reading is not achieved, adjust the pressure relief valve as needed. (clockwise to increase pressure, counterclockwise to decrease)
- If the above pressure cannot be met, then either the relief valve or pump is faulty.

Diagnosing Loss of Valve Stack Functions

- The valve stacks controls, Header Raise/Lower, Basket Up/Down, Cylinder Speed, and, if equipped, Conveyor Swing or Bin Lip Extension.
- If a customer reports the loss of one function, have them check the remaining.
- If all functions have stopped functioning, the problem is likely loss of oil pressure signal.
- For safety, the combine controls will not allow any valve stack functions to work unless the engine is running which is determined by the oil pressure switch being close to ground.
- This problem can exist without a low oil pressure alert though typically it will present as such:
- Start by testing the oil pressure switch. It should close when the engine is started. If it doesn't, then replacing the switch should resolve the problem.
- If it does, try adding an additional ground to the black wire side of the oil pressure switch connector.
- If neither resolves the problem, then troubleshoot the circuit as described by Service Advisor. This system is identical to a Deere combine.

Note: On combines up to the 9960, the oil pressure switch provides ground for the Engine Run relay. On 9960 and 9970 combines, the oil pressure signal is connected to the ECU then transmitted via the Can Bus.

Basic Mechanical Repairs

- Change the No. 1 Disc Separator Shaft
- Adjust the Shaker Arms
- 9970 Header Clutch Changes

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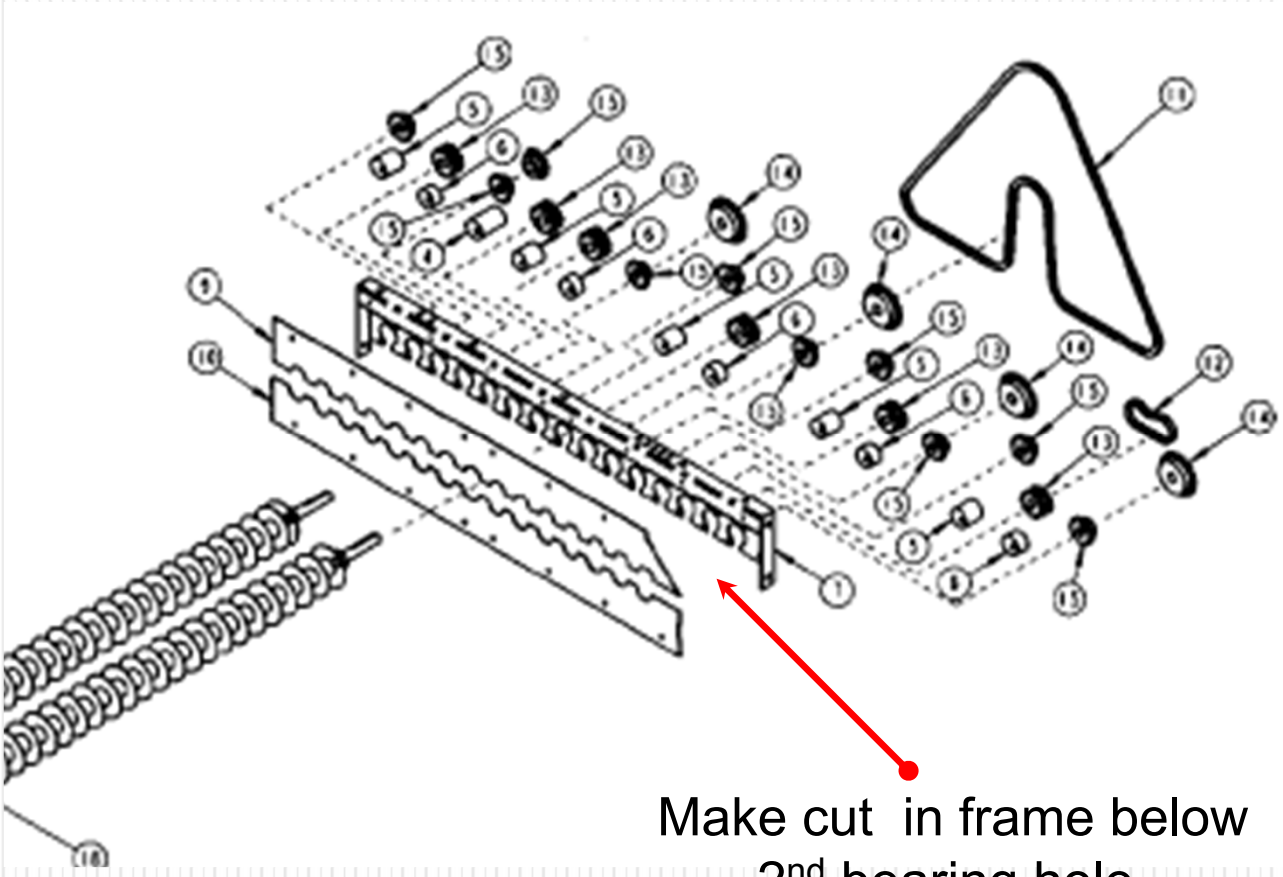
How to Change the Number 1 Disc Separator Shaft

SP Combines and PT Combines up to 2005 only

- Remove any ductwork on the machine that is in the way.
- Remove the snubber idler, main chain, small chain sprocket, and both upper disc shaft shields from the machine.
- Take the lock collars off of the bearings of the number one shaft.
- On the right side of the machine, cut the machine below the shaft so that the entire shaft can be removed assembled.
- Install the new shaft assembled, centering it in the machine and locking the bearings down.
- Weld the side of the machine back together and paint it AMADAS blue. A piece of flat bar can be welded to one side of the cut and bolted to the other instead of welding. This will allow access in the future.
- Replace the sprockets, chains, disc shields, and ductwork, and snubber idler.
- Make sure the blades bisect the number two shaft blades; refer to the number three shaft as an example. The first and third shafts should match.
- Run the machine to check that it is properly installed.

Illustration on where to cut to change #1 Disc Separator Shaft



Make cut in frame below 2nd bearing hole.

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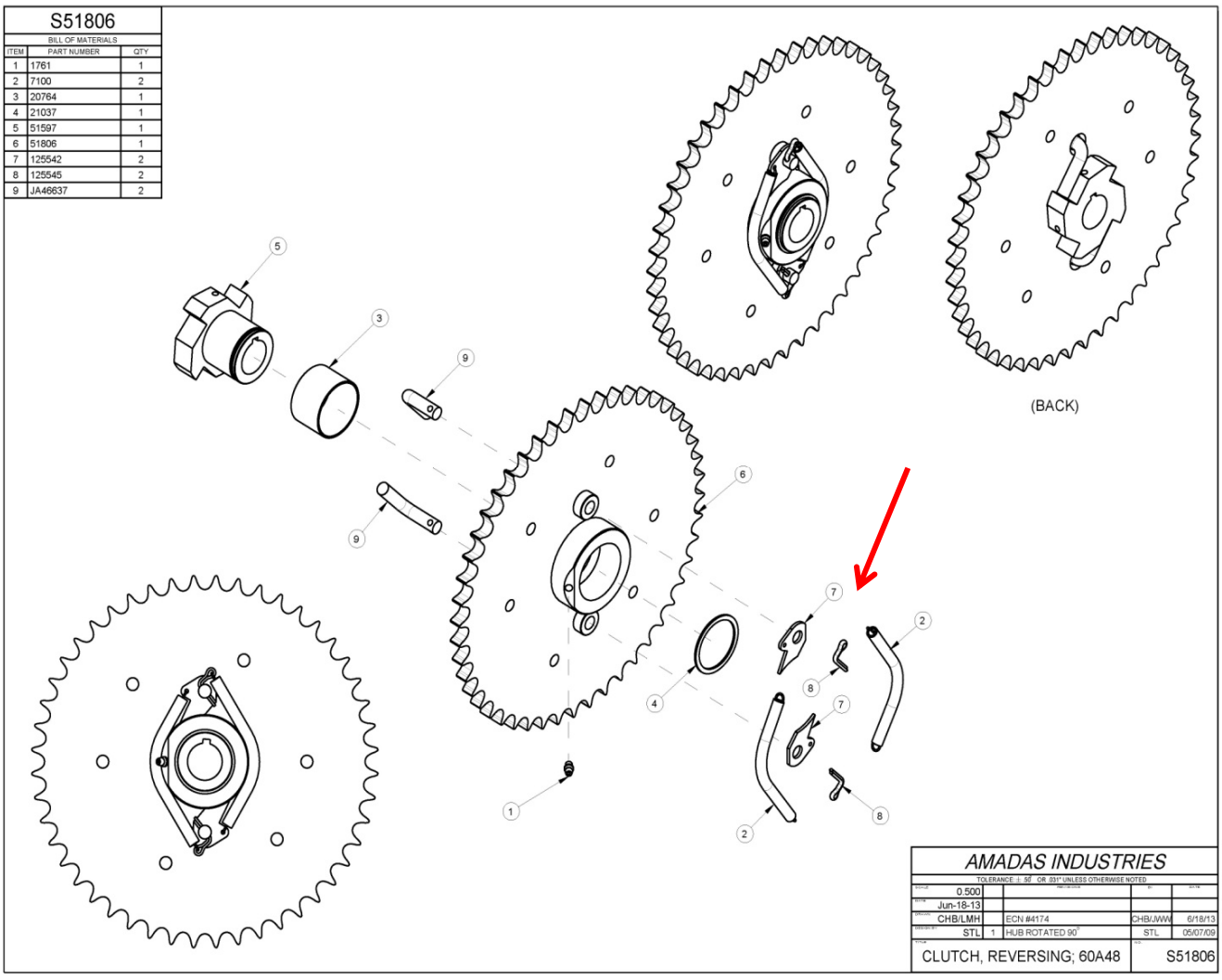
How to Adjust the Shaker Arms

Make sure the stemmer bottom is running as squarely as possible. If a stemmer is striking, it will damage the stemmer bottom. This contact can be caused by several things, such as mud build up, over speed (more than 110% on PT's only), loose or lost bolts on the stemmer bottom hinges, worn grommets on the stemmer pegs, and cracked and damaged rubber hinges.

- With only one arm connected, stroke the machine forward (toward the tongue or cab) as far as possible. If the pegs are striking the machine side, lengthen the arm until you have ½ to ¾ of an inch of clearance.
- Once the stroke is set, install the bolt attaching the arm to the eccentric on the opposite side. Do not force the bolt to line up; instead, adjust the rod end in or out until the bolt lines up.
- Stroke the machine all the way to the rear and make sure it does not strike. If there is no striking, then ensure that both arms are tightened (including adjusting rod jam nuts).
- For older PT combines without cross augers, check for clearance in front and back of the peanut funnel.
- If all looks well, then run the machine starting at a slow speed listening for any striking noises. If there are none, then increase to operating speed. If no striking noise is heard, the repair is complete.

9970 Header Clutch Changes



Stronger, independent springs for each paw.
Requires new springs, clips and 90 degree cotter pins

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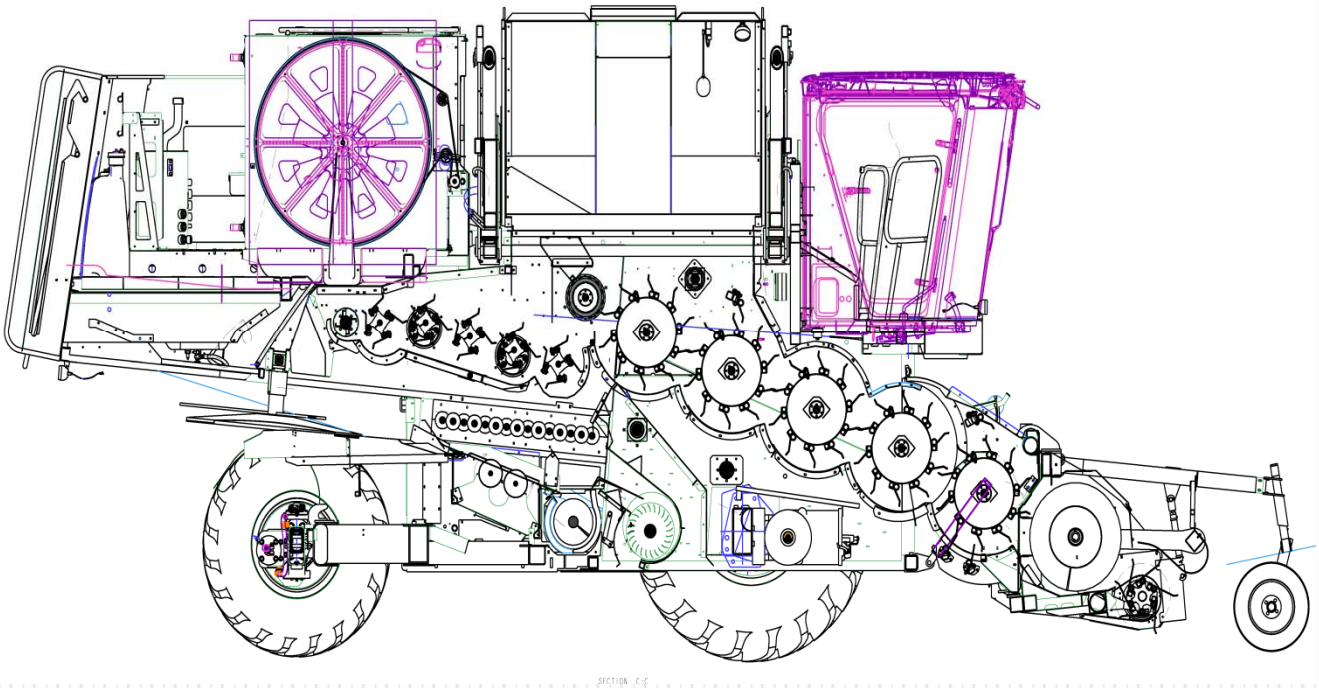
Field Performance

- Theory of Operation
- Performance Troubleshooting
- Shaft Speeds Value and Use
- Basic Things to check on Service Call

Theory of Operation



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Theory of Operation

- The header pickup lifts the peanuts and vines off of the ground. The header auger feeds them into the spring tooth cylinders.
- The spring tooth cylinders strip the peanuts from the vines. Large amounts of dirt and foreign material are removed by the cleaning area of the cylinder dirt removal screens under each cylinder.
- The first and fourth spring tooth cylinders have sets of adjustable overhead teeth which increase picking aggressiveness when engaged. An adjustable retention board controls the time that the vines remain in the fourth cylinder.
- Optional adjustable concave teeth are available for the first, second, and third cylinders for increased harvesting aggressiveness.
- Peanuts and vine material fall through the extraction holes in the fourth cylinder concave onto the disc separator, or travel back into the walker cylinders.
- The walker cylinders separate the good peanuts from the coarse vine material and carry the vine material out of the machine. Peanuts sift out of the cam actuated walker cylinders and are swept down to the disc separator for final separation.
- At the disc separator, the good peanuts are separated from vine material and other light trash.
- The cleaning fan agitates the material on the disc separator to aid in separation and blows light material such as leaves, pops, and other light trash over the tail board and out of the back of the combine.
- The higher density good peanuts fall through to the stemmer section, while vine material and sticks advance across the disc separator and out of the back of the combine. As the good peanuts fall into the stemmer saws, their stems are removed. Cleaned peanuts fall into the collection auger and are conveyed into the elevator air system, which sends them up to the peanut dump bin.

Performance Troubleshooting

PROBLEM	CAUSE	CORRECTION
Good peanuts attached to vines are being discharged from the combine.	Picking control board open too much.	Close in 1" increments between checks.
	Variable cylinder speed too low.	Increase variable cylinder speed.
	Main drive belt slips under surge loads.	Tighten belt and slow down ground speed.
	Ground speed too fast for conditions.	Reduce speed.
	Moisture level in windrows is too high.	Lift windrows and/or wait for moisture to dissipate.
	Adjustable breast spring bars not engaged enough.	Engage breast spring bars slightly (in 1" increments).
	Combine engine speed too slow.	Disengage 10% speed reduction switch.
	Combine picking cylinders too slow.	Drive chains need to be on higher speed sprockets.
Loose peanuts being discharged over rear separator cylinders.	Combine separator not at or near design speed.	Adjust speed and monitor combine tachometer.
	Ground speed too high for conditions.	Reduce speed.
Lightweight foreign material in bin.	Cleaning air control set too low.	Adjust to a higher setting.
	Combine separator not at or near design speed.	Adjust and monitor combine tachometer.
	Main drive belt slips under surge loads.	Tighten belt and reduce ground speed.
	Moisture level in windrows too high.	Lift windrows and/or wait for moisture to dissipate.
	Separator section drive, or cleaning air drive belts are slipping.	Tighten belts.

Performance Troubleshooting Page 2

PROBLEM	CAUSE	CORRECTION
Excessive amounts of LKSs in bin.	Adjustable breast spring bars are set too aggressively.	Disengage in 1" increments between checks.
	Picking control board engaged too far in the closed position.	Open in 1" increments between checks.
.	Elevator fan set too high.	Lower elevator fan setting.
	Variable cylinder speed too high.	Decrease variable cylinder speed.
	Main drive belt slips under surge.	Tighten belts.
	Moisture level in windrows too high.	Lift windrows or wait for moisture to dissipate.
	Moisture content in peanuts too low.	Minimize aggressive settings, reduce combine RPM 10%. Increase to a higher ground speed if possible.
	Combine separator not at or near design speed.	Adjust speed and monitor combine tachometer.
	Obstruction in pneumatic conveyor.	Shut off combine, disassemble duct, and remove obstruction.
	Stones in air duct.	Shut off engine, open cleaning door and remove stones. Close door.
	Windrows have been run over and the peanuts shell easily.	None.
	Combine picking chamber not fully loaded.	Increase ground speed slightly.
Excessive amounts of dirt clods in bin.	Pickup header is being operated too low.	Raise header so that spring tips just touch the ground.
	Excessive dirt in windrow. Ground speed too fast for conditions.	Lower ground speed.
	Combine separator not at or near design speed.	Adjust speed and monitor combine tachometer.
	Main drive or cleaning air belts are slipping.	Tighten belts and check cleaning air fan belt and V sheave for wear.
	Breast springs not engaged.	Engage breast springs in 1" increments.

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Performance Troubleshooting Page 3

PROBLEM	CAUSE	CORRECTION
Elevator fan does not deliver peanuts to the bin.	Elevator fan set too low.	Increase setting.
	Combine engine not at or near design speed.	Adjust and monitor tachometer.
	Ground speed too fast for conditions.	Reduce speed.
	Obstruction in pneumatic conveyor duct.	Disassemble duct and remove obstruction.
	Main drive, cleaning air, or elevator fans belts are slipping.	Tighten belts and check the elevator fan belt and V sheave for wear.
	Stones or dirt clods in air duct.	Shut off combine, open cleaning door and remove stones or clods.
	Animals have built nests in high pressure section of pneumatic conveyor system.	Remove inspection door in auger and remove nest.
	Dirt built up on inside of duct.	Inspect and clean.
Combine separator load excessive.	Combine separator not at or near design speed.	Adjust and monitor cylinder speed indicator.
	Ground speed too fast for conditions.	Reduce ground speed.
	Picking chamber jammed.	Stop, shut off engine, and remove excess material.
Hay is torn up excessively under dry conditions.	Adjustable breast spring bars set too aggressively.	Disengage breast spring bars in 1" increments between checks.
	Combine is being operated above ideal speed level.	Engage 10% speed reduction. Switch dual speed picking cylinder drives to low speed sprocket set.
	Combine picking chamber not fully loaded.	Increase ground speed slightly.

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A9970 Self Propelled Peanut Combine
Shaft Speeds

SHAFT DESCRIPTION	SPEED (RPM)
Engine RPM	2510
Engine Gearbox Output	1524
#1 Jackshaft	790
#2 Jackshaft	526
#3 Jackshaft	208
Header Hydraulic Pump	1524 (18.5 gpm)
High #1 Picking Cylinder	114
High #2 Picking Cylinder	117
High #3 Picking Cylinder	132
Low #1 Picking Cylinder	89
Low #2 Picking Cylinder	91
Low #3 Picking Cylinder	102
Max. Cyl. Gearbox Input	2329
Min. Cyl. Gearbox Input	1441
Max. #4 Picking Cylinder	259
Max. #5 Picking Cylinder	273
Min. #4 Picking Cylinder	160
Min. #5 Picking Cylinder	169
#1 Beater Cylinder	344
#2 Beater Cylinder	497
#1 Stemmer	245
#2 Stemmer	302
#1 Separator Cylinder	98
#2 Separator Cylinder	102
#3 Separator Cylinder	107
#4 Separator Cylinder	111
#5 Separator Cylinder	116
#1-15 Disc Separator	186
Elevator Fan	2510
Cleaning Fan	1263
Vine Spreader	308
Collection Auger	107
Max. Header Auger Motor	389
Max. Header Auger	146
Max. Header Pickup Motor	389
Max. Header Pickup Motor	88
OCS Pump	2510 (19.7 gpm)
OCS Auger Motor	228
OCS Augers	53
OCS Conveyor Motor & Roller	253
OCS Conveyor Belt Speed	563 (ft/min)

Basic Things to Check on Service Call

- Ensure belts are properly tightened and sheaves are not severely worn.
- Make sure drive chains are tightened correctly.
- Check for failed bearings.
- Inspect and clean as needed area above #1 disc separator shaft. Any build up or obstruction can affect cleaning system.
- Check for broken or missing picking cylinder teeth.
- Look for cleaning fan blades that are not cracked, bent or worn badly.
- For air lift problem ensure elevator lift fan blades are not badly worn or missing.
- Inspect for missing or broken header pickup springs.
- If harvesting in mud, make sure the cleaning fan and housing are clean. Small amounts of mud disturb air flow and the combine will not clean or cause fan failures.
- Look for bent or missing cylinder bars. If any, also check for bent lower concaves.
- Check for mud and/or foreign objects in the ductwork, stemmer bottom and cross auger. This can affect both cleaning and shelling.
- Check ratchet clutch (drives back of machine) to see if it is seized due to repeated jamming or lack of lubrication.

Why Use Amadas Parts?

- Ensures the parts have been matched to the application.
- You typically “get what you pay for.”
- Using inferior parts can cause premature failure, resulting in a dissatisfied customer.
- Amadas stands behind its product. But when incorrect or inferior parts are used, problems can be created that using Amadas parts would have prevented.

Critical Places to Use the Correct Parts

- **Bearings:**
- All combine bearings should be Timken
- Substituting other brands may create frequent failures due to inadequate seals or bearing type for the application.
- For example: The elevator and cleaning fans both have high speed seals. The cleaning fan uses wide inner race for stability and the main jack shaft must be well sealed.
- **Belts:**
- We use belts with backings rated for reverse bending where ever an idler is used.
- Do NOT substitute single belts in place of banded belts as a long term fix. A banded belt is made up of multiple belts with a common backing.
- It is impossible to keep multiple singe belts at the same tension so the total amount of horsepower will not be transmitted. This will lead to speed fluctuation and/or belt failure.
- **Chains:**
- We use only domestic high quality chain, typically Diamond, on our combines.
- On all applications of #80 chain or higher, it is imperative to use this chain.
- Lower grade chain will stretch or break, which can cause tooth wear on sprockets or failure that can damage and/or plug the machine.

Warranty Information

- SP 9970 Combine Warranty
- Product Identification Number
- Warranty Terms and Period
- Amadas Warranty Claim Form

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SP 9970 Warranty

ONE-YEAR LIMITED WARRANTY
For AMADAS INDUSTRIES 9970 SP Peanut Combine Components

A. General Provisions

The Warranties described below are provided by AMADAS INDUSTRIES ("AMADAS") covering the AMADAS manufactured parts and components on the 9970SP self propelled peanut combine. These warranties are provided through AMADAS authorized dealers to the original purchaser of each new AMADAS 9970 SP peanut combine. AMADAS will repair or replace, at its option, any part covered under warranty which is found to be defective in material or workmanship during the applicable period of warranty. The period of this warranty is one year, which is deemed by AMADAS to equal 12 months, 250 separator hours, or 500 engine hours, whichever comes first.

B. What is Warranted?

All AMADAS manufactured parts and components of any new AMADAS 9970 SP peanut combine, except tires, tubes, filters, belts, chains, drivelines, picking and header springs, and other wear parts are warranted for 12 months, 250 separator hours, or 500 engine hours, whichever comes first. The warranty period will begin when the combine is delivered to the purchaser and will last until twelve months have passed or the combine has registered 250 separator hours or 500 engine hours according to the cornerpost separator hours display in the cab. AMADAS will repair or replace, at its option, any new part or component under the above warranty, if a defect in material or workmanship appears in such part or component and is reported to AMADAS before the expiration of the applicable equipment warranty. Tires, tubes, filters, belts, chains, picking and header springs, drivelines, and other wear parts are not warranted by AMADAS beyond that offered by the items original manufacturer.

Used equipment is not warranted by AMADAS unless it is specifically covered by a separate warranty document. The above warranties cover only defective material and workmanship. The warranties do not cover any depreciation or failure caused by normal wear, lack of proper maintenance or use, misuse, lack of proper protection during storage, or accident. The purchaser shall pay all costs of routine maintenance and/or replacement of maintenance and wear items.

C. Unapproved Service or Modification

All obligations of AMADAS under this warranty are terminated if the combine is modified, serviced, or altered in ways not approved by AMADAS. The warranty will be terminated if there is any sign of tampering with or modification of the separator or engine hours measurement system.

D. Securing Warranty Service

To secure warranty service, the purchaser must (1) report the product defect and request repair within the applicable warranty period, (2) present evidence of the date of delivery of the peanut combine, and (3) make the combine available at an AMADAS authorized dealer within a reasonable period of time. If the purchaser cannot make the machine avaiable at an authorized dealer's facility, the purchaser shall be responsible for the mileage and costs associated with a field service call.

E. No Dealer Warranty

The selling dealer makes no warranty of his own on any item warranted by AMADAS, and makes no warranty on other items. The dealer has no authority to make any representation or promise on behalf of AMADAS, or to modify the terms or limitations of this warranty in any way.

F. What are your Responsibilities?

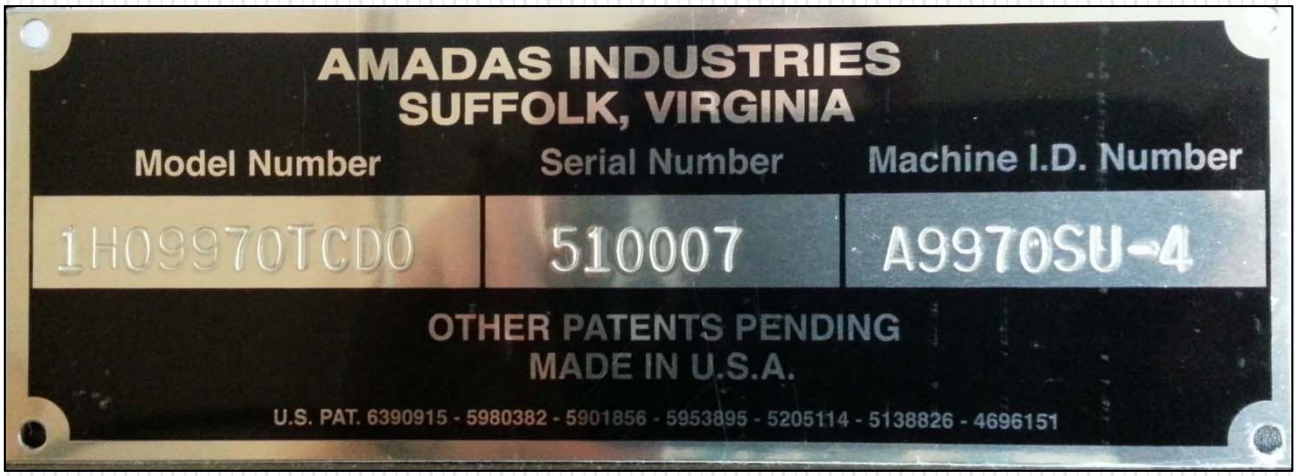
a. Sign the AMADAS machinery delivery form, which will be given to you by the dealer.
b. Read the operator's manual before operating the equipment.
c. Perform all necessary maintenance as described in the operator's manual.
d. Contact an AMADAS authorized dealer promptly on any claim for warranty service.
e. Deliver the machine to an AMADAS authorized dealer at your expense during normal working hours for any needed warranty services.

G. Disclaimer

There are no warranties that extend beyond the description here. **ANY WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE ARE SPECIFICALLY DISCLAIMED AS ARE ALL OTHER REPRESENTATIONS TO THE PURCHASER.** AMADAS specifically excludes any liability on behalf of the company for any incidental or consequential damages including, but not limited to, crop loss, loss of profits, rental of substitute equipment, or other commercial losses. AMADAS shall not be responsible for expenses or inconveniences that you might incur or experience with respect to the AMADAS peanut combine, nor shall AMADAS be liable for defects, damage, or failures caused by accident, improper storage, unreasonable use, or abuse, including the failure to provide reasonable and specified maintenance. This warranty applies only to the original purchaser of the equipment. Because some states do not allow the exclusion of limitations of incidental or consequential damages, the above limitation may not apply to you. This warranty gives you specific legal rights. You may also have other rights, which vary from state to state. Where there is a conflict between a provision of this warranty and the provision of any state, the state legislation prevails.

AMADAS

Product Identification Number



Model Number

Serial Number

Machine ID Number

For Amadas purposes, use the Serial Number:

XXXXXX

Example above: 510007

For Amadas "New Machine Warranty Registration Form":

XXXXXXX-X

Example above: A9970SU-4

For John Deere, use the Model + Serial Number:

XXXXXXXXXXXXXXXXX

Example above: 1H09970TCDO510007

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AMADAS
INDUSTRIES

Dealer Warranty Service Policy

1) This Warranty Service Policy applies to Authorized Amadas Industries Dealers ONLY.

2) It is the responsibility of Authorized Amadas Industries Dealers to perform warranty service.

3) Warranty claims must be prepared using an Amadas Warranty Claim Form and submitted to Amadas Industries within 30 days of actual repair. All claims must be complete and include all pertinent information and be submitted to our Suffolk, VA office. Claims will normally receive action within 30 days of receipt.

4) All defective parts replaced under warranty must be identified, tagged, and stored until Amadas makes a determination as to further disposition.

5) If Amadas determines that defective parts need to be returned, Amadas will issue an RGA (Returned Goods Authorization) number to the Dealer. The Dealer will ship the parts to Amadas immediately upon receipt of an RGA number. If the parts are not received within 30 days, the warranty claim will be denied.

6) Parts shipped to Amadas must be sent freight prepaid. If the claim is accepted, freight will be credited to the corresponding claim. All shipments to Amadas to be Standard UPS Ground Service unless otherwise instructed.

7) Replacement parts for warranty will be shipped and invoiced to the Dealer. These parts invoices are due and payable in accordance with the normal terms and conditions regarding parts invoices, i.e. net 30 days. Upon acceptance of the claim by Amadas, the parts excluding freight, will be credited as a part of the warranty claim.

8) All warranty repairs must be made with genuine Amadas replacement parts.

9) Warranty Parts Reimbursement Allowance – Dealer credit for Amadas parts, new assemblies, and remanufactured components used for warranty service will be at normal Dealer Net Price plus 20%.

10) Warranty Service Labor Allowance – Dealer reimbursement for labor required for warranty repair will be equivalent to the normal Dealer's Hourly Shop Labor Rate as registered with Amadas, multiplied by the number of hours for repair as submitted by the Dealer, but not to exceed the number of hours as approved by Amadas.

11) Each Dealer must keep Amadas informed in writing and verified by the Amadas service manager of their current hourly shop labor rate.

12) Time allowed for completion for warranty service work (excluding diagnostic labor) will be established by Amadas. For repairs for which there are no pricing guides or flat rates established, the repair time allowed will be on the basis of time reasonably spent. Final determination of time reasonably spent will be made by Amadas.

13) The Amadas Whole Good Warranty Policy to the original purchaser provides for warranty repair work to be performed on the premises of an authorized Amadas Dealer. If the Dealer travels to the machine to perform warranty service work, the costs for travel should be for the customer's account. Amadas will not reimburse a Dealer for mileage or travel time in conjunction with the performance of warranty service work.

14) Amadas service personnel will be available to assist Dealer service personnel if the need arises. If an Amadas service technician goes to the field, he must be accompanied by a trained Dealer service technician.

15) If service work performed under warranty does not repair the equipment satisfactorily due to improper diagnosis or poor workmanship, the Dealer remains obligated and responsible for subsequent repair and will not be reimbursed by Amadas.

16) The Dealer must use and retain work orders for all warranty repairs. They should be numbered and dated, and contain a complete list of parts used and labor hours required. The time cards, and other pertinent information essential to the audit of warranty claims are to be retained by the Dealer until such time as the claim is settled.

Revised 4/99

Amadas Warranty Claim Form

Requesting an Amadas Warranty Claim Form:

- Request a claim form from the Amadas Territory Sales Manger
- If not available, request a form from Willie Branch or Roger Mercer at 1-757-539-0231

Completing an Amadas Warranty Claim Form:

- Refer to the example on the next page to properly complete an Amadas Warranty Claim Form.

Submitting a Warranty Claim Form:

- Once properly completed, return your Warranty Claim Form to:

  Amadas Industries, Inc.
  Attn: Willie Branch
  1100 Holland Road
  Suffolk, VA 23434

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Example Amadas Warranty Claim Form

AMADAS INDUSTRIES

APPLICATION FOR ADJUSTMENT

№ W11287

DEALER NAME AND ADDRESS	OWNERS NAME AND ADDRESS	DATE WRITTEN
Carolina Tractor 308 Cotton Ln Tarboro NC	John Doe Farm 265 Jerdan Dr. Hobgood NC	10/2/12
		SERIAL NO. 510000
		MODEL NO. 2110
		DELIVERY DATE 3/15/12
		DATE OF REPAIR 9/25/12
		DEALERS WORK ORDER NO. W0457-91

DETAILED REPORT ON REPAIR

Bearing failed on pedestal shaft after three day in the field.

PART NO.	QTY.	PART NAME	UNIT PRICE	EXTENSION
3160	1	Bearing	61.40	61.40
		Labor rate	70.00 per Hour	
		Labor .5 hrs		35.00
			TOTAL →	96.40

John Smith
AUTHORIZED DEALER SIGNATURE

FACTORY USE ONLY

☐ CLAIM APPROVED

☐ CLAIM DENIED

REASON FOR DENIAL:

Attach copy of work order

AMFOO29-1190

White - Factory Copy; Canary - Packing Slip Copy; Pink - Dealer Copy; Goldenrod - Factory Copy

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